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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,141	12/05/2001	Alexander Beeck	033275-316	3862

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,141

Applicant(s)

BEECK ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-5, 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Applicant's amendment dated August 4, 2006 has been carefully considered but is non-persuasive. Claims 3-5 and 16 are pending. The objection to the specification as failing to provide proper antecedent basis for the subject matter of claim 11 is overcome by the cancellation of claim 11. Claims 4 and 5 have been amended to overcome the informalities therein. Correction of the above matters is noted with appreciation.

Applicant has argued concerning Liotta 5,902,093 that claims 3, 5, and 16 define over this reference because in Liotta's blade 10, the aperture 44a extends in the same direction as the third pass 40e, noting the direction of the upward oriented arrow shown in third pass 40e, and the direction of the smaller upward oriented arrow that extends into aperture 44a. Applicant has further argued that these two arrows are parallel to each other, while in contrast claim 16 recites that the curved flow section is configured to curve in the first flow direction, and that aperture 44a of Liotta does not extend in the first flow direction, as recited in claim 16. Applicant has also made reference to figure 2 of the instant application in explaining claim 16. These arguments are respectfully disagreed with and are not persuasive. Independent claim 16 of the instant application is a generic claim, reading on both figures 1 and 2 of the present application. Figure 2 of Liotta is similar to figure 1 of the instant application, with the coolant passage of Liotta comprising at least one curved flow section 40f that is configured to curve in a first flow direction corresponding to Applicant's coolant passage 4 in figure 1, with a second passage 44a that branches off the coolant passage at the curved flow section and is arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section corresponding to Applicant's second passage 5 in figure 1. The curved section 40f of Liotta is

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configured to curve in a first flow direction (radially inward), while the second passage 44a of Liotta is arranged to extend in the first flow direction (radially inward) along a flow path which is tangential to the curved flow section.

Applicant has argued concerning the rejection of claims 3-4 and 16 under 35 U.S.C. 103(a) as being unpatentable over Abdel-Messeh 5,052,889 in view of Glezer 5,603,606 that Abdel-Messeh's second passage B is for the exhaust of cooling air only, that Glezer's gallery 170 is a cooling passage only, and that neither of these references disclose that the air cooling passage should be sized for inspection. These arguments are not persuasive, because as set forth in the previous Office action, tip passage 170 of Glezer is arranged and dimensioned to enable the introduction of a borescope through the inspection aperture 178 and the second passage 170, since these are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture. Applicant has further argued that removing the cooling pins from the second passage B of Abdel-Messeh would result in undercooling and consequent overheating and that one of ordinary skill in the art would not make this modification and that the modified turbine airfoil would be unsatisfactory for its intended purpose. Applicant has further argued that according to MPEP 2143.01(I), because the modified turbine airfoil would be unsatisfactory for its intended purpose, the Office has established no suggestion or motivation to make the proposed modification and that because the modified turbine airfoil would be unsuitable for its intended operation, the Office has not established why the proposed modification would have

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been desirable to one skilled in the art and that the prior art must suggest the desirability of the claimed subject matter. These arguments are not persuasive, because removing the cooling pins from the second passage B of Abdel-Messeh would not render the turbine airfoil unsatisfactory for its intended purpose. These pins are relatively small in diameter compared to the trip strips 38, 38' and are mainly provided for structural support of the turbine blade 56. Trip strips 38, 38' are provided for increased heat transfer rates and cooling. Since the trip strips are not removed (they are located on interior sides of sides 72 and 74 of the turbine blade), the proposed modification would not render the turbine airfoil unsatisfactory for its intended purpose. As set forth in MPEP 2144.04 II (A), omission of an element and its function is obvious if the function of the element is not desired.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3, 5, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Liotta 5,902,093. Note the component 10 of a fluid flow machine, the component comprising a coolant passage comprising at least one curved flow section 40f configured to curve in a first flow direction to establish coolant medium flow in the first flow direction, and a second passage 44a

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comprising an unnumbered inspection aperture arranged and dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage, with the second passage branching off the coolant passage at the curved flow section and being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section. The component is a rotating blade for a turbine, the inspection aperture is arranged in the neighborhood of a tip 34 of the blade, and the inspection aperture is arranged at the blade tip and has its longitudinal axis essentially perpendicular to an axis of the fluid flow machine. The recitation of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage does not define over Liotta, because these limitations are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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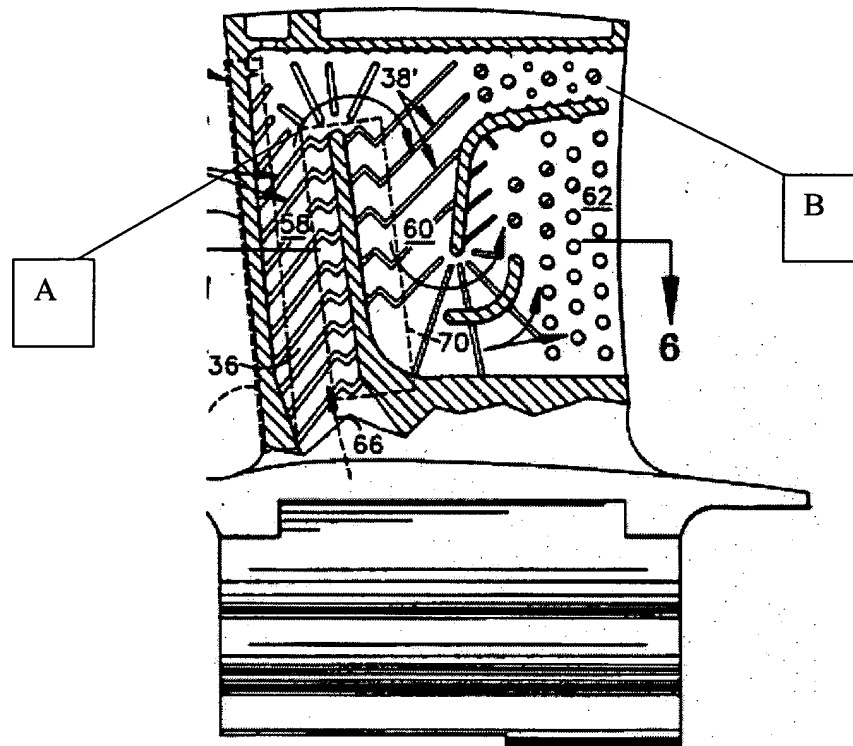
claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abdel-Messeh 5,052,889 in view of Glezer 5,603,606. Please see the annotated figure below. Abdel-Messeh (figure 5) discloses a component of a fluid flow machine substantially as claimed, including a coolant passage comprising at least one curved flow section A configured to curve in a first flow direction to establish coolant medium flow in the first flow direction, and a second passage B comprising an unnumbered inspection aperture, with the second passage branching off the coolant passage at the curved flow section and being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section. The component is a rotating blade for a turbine, the inspection aperture is arranged in the neighborhood of a tip of the blade, and the inspection aperture is arranged at the blade tip and has its longitudinal axis essentially parallel to an axis of the fluid flow machine.

However, Abdel-Messeh does not disclose that the second passage B is arranged and dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage. Rather, the second passage has obstructions inside.

Glezer shows a cooled turbine blade 114 having tip passage 170 and an inspection aperture 178, with the tip passage being free of any flow obstructions, for the purpose of providing a smooth flow of cooling fluid along the tip and out of the blade at the tip. The tip passage is arranged and dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage, since these are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be able to be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the second passage B of Abdel-Messeh such that it is unobstructed and thus that it is arranged and dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage, as taught by Glezer.



THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.
October 10, 2006


Christopher Verdier
Primary Examiner
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